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CNC CHARLESTON
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LETTER TRANSMITTING MONITORING WELL LOGS AND WELL DEVELOPMENT LOGS
ZONE C AREAS OF CONCERN 508, 511 AND 512 CNC CHARLESTON SC
9/19/1997
ENSAFE INC.



ENVIRONMENTAL AND SAFETY DESIGNS, INC.

935 Houston Northcutt Blvd. • Suite 113 • Mt. Pleasant, SC 29464 • Telephone 803-884-0029 • Facsimile 803-856-0107

September 19, 1997

Paul Bergstrand
Department of Health and Environmental Control
Bureau of Solid and Hazardous Waste
8901 Farrow Road
Columbia, South Carolina 29203

**RE: Submittal of Zone C Monitoring Well Logs and Well Development Logs at
AOCs 508, 511 and 512.**

Dear Mr. Bergstrand:

On behalf of the Caretakers Site Office, EnSafe/Allen & Hoshall is submitting copies of the well construction logs and well development logs for four wells installed in Zone C at Naval Base Charleston between August 6-7, 1997 under permit approval number HW-97-0066 (July 18, 1997). Three (3) temporary monitoring wells and one (1) permanent monitoring well (all shallow) were installed in the vicinity of AOCs 508, 511 and 512, the locations of which may be seen in Figure 1 attached to the *Request for Monitoring Well Installation* by EnSafe/Allen & Hoshall (July 17, 1997).

If you have any questions or if we can be of further assistance, please do not hesitate to contact us at (803)-884-0029.

Sincerely,
EnSafe Inc.

A handwritten signature in cursive script that reads "Charles Vernoy".

By: Charles Vernoy
Environmental Chemist

Enclosures

cc: Commander Billy Drawdy, Officer In Charge, Caretakers Site Office
Tony Hunt, SOUTHDIV
Allison Dennen, EnSafe Inc.
Project file 2903-8420

EnSafe/Allen & Hoshall

Monitoring Well NBCC508003

Project: Zone C - Naval Base Charleston

Coordinates: 2313775.98 E, 377332.99 N

Location: Charleston, SC

Surface Elevation: 26.88 feet msl

Started at 0900 on 8-7-97

TOC Elevation: 29.44 feet msl

Completed at 1115 on 8-7-97

Depth to Groundwater: 13.78 feet TOC Measured: 8-8-97

Drilling Method: 4.25" ID (7.5" OD) HSA with split spoon

Groundwater Elevation: 15.66 feet msl

Drilling Company: Alliance Environmental

Total Well Depth: 20 feet bgs

Geologist: Q. Macdonald

Well Screen: 9.5 to 19.5 feet bgs

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	% RECOVERY	PTD (ppm)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)	WELL DIAGRAM
								Surface conditions: grass, soil and fill.		
								Not logged: shelby tube pushed, 100% recovery.		
5			1	100	2.2			Sand: tan-brown-grey; fine grained to silty; damp.	21.9	
			2	100	1.4					
10			3	100	2.7					
			4	100	2.2		SM			
15			5	100	2.9					
			6	100	2.8					
20			7	100	1.4				7.9	

DRAFT

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ENSAFE / ALLEN & HOSHALL
NAVAL BASE CHARLESTON
WELL DEVELOPMENT STATUS REPORT
ZONE C

WELL DEVELOPMENT SUMMARY

Well:NBCC\508-003

Summary Log of well development progress.
Readings are final readings for each visit.
Volume data are cumulative from start of development.

DATE	VOLUME Gallons	pH	Turb NTU	Cond mS/cm	Temp Celsius	Log VOL. PG#
8/8/97	5	4.85	999	0.197	24.1	8DL1P128
8/8/97	10	5.08	775	0.194	24	8DL1P128
8/8/97	15	5.09	61	0.201	23.4	8DL1P128
8/8/97	20	5.19	0	0.205	23.1	8DL1P128
8/8/97	23	5.1	0	0.208	23	8DL1P128
8/8/97	25	5.06	0	0.209	23.1	8DL1P128

Well Development Completed on: 8/8/97

COMMENTS:

EnSafe/Allen & Hoshall

Monitoring Well NBCC511002

Project: Zone C - Naval Base Charleston

Coordinates: 2314828.86 E, 377125.08 N

Location: Charleston, SC

Surface Elevation: 26.59 feet msl

Started at 1330 on 8-6-97

TOC Elevation: 29.09 feet msl

Completed at 1700 on 8-6-97

Depth to Groundwater: 12.34 feet TOC Measured: 8-8-97

Drilling Method: 4.25" ID (7.5" OD) HSA with split spoon

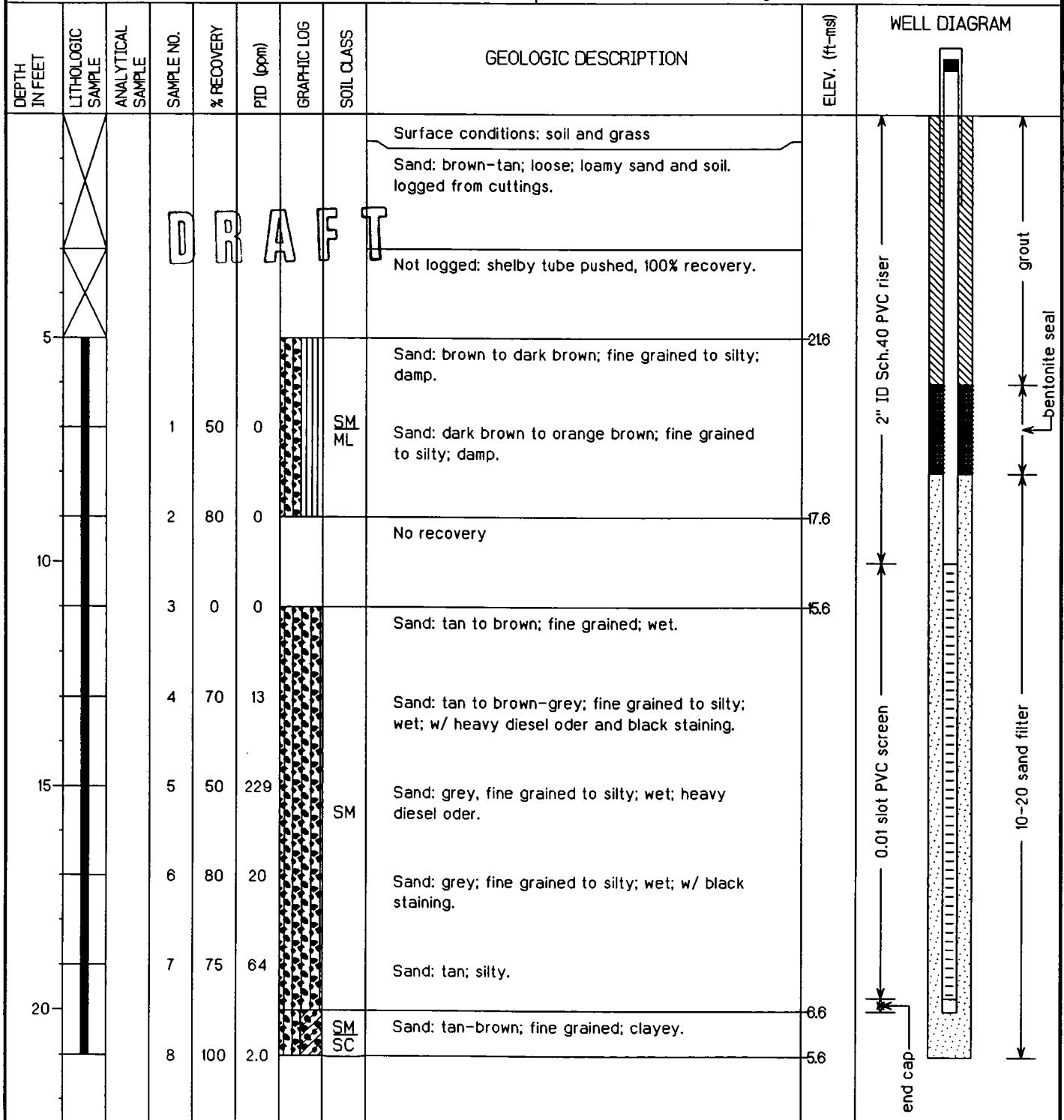
Groundwater Elevation: 16.75 feet msl

Drilling Company: Alliance Environmental

Total Well Depth: 20 feet bgs

Geologist: S. Weatherford

Well Screen: 10 to 20 feet bgs



ENSAFE / ALLEN & HOSHALL
NAVAL BASE CHARLESTON
WELL DEVELOPMENT STATUS REPORT
ZONE C

WELL DEVELOPMENT SUMMARY

Well:NBCC\511-002

Summary Log of well development progress.
Readings are final readings for each visit.
Volume data are cumulative from start of development.

DATE	VOLUME Gallons	pH	Turb NTU	Cond mS/cm	Temp Celsius	Sal %	Log VOL. PG#
8/8/97	5	4.68	999	0.142	23.7	N/A	DL1 P.127
8/8/97	10	5.82	770	0.091	24.1	N/A	DL1 P.127
8/8/97	15	5.78	230	0.084	23.5	N/A	DL1 P.127
8/8/97	20	5.76	131	0.081	23.8	N/A	DL1 P.127
8/8/97	23	5.76	1	0.088	23.6	N/A	DL1 P.127
8/8/97	24	5.78	0	0.08	23.6	N/A	DL1 P.127
8/8/97	25	5.79	0	0.079	23.6	N/A	DL1 P.127

Well Development Completed on: 8/8/97

COMMENTS:

EnSafe/Allen & Hoshall

Monitoring Well NBCC512002

Project: Zone C - Naval Base Charleston

Coordinates: 2314623.25 E, 378046.37 N

Location: Charleston, SC

Surface Elevation: 7.85 feet msl

Started at 1400 on 8-7-97

TOC Elevation: 10.23 feet msl

Completed at 1552 on 8-7-97

Depth to Groundwater: 3.83 feet TOC Measured: 8-8-97

Drilling Method: 4.25" ID (7.5" OD) HSA with split spoon

Groundwater Elevation: 6.40 feet msl

Drilling Company: Alliance Environmental

Total Well Depth: 12 feet bgs

Geologist: S. Weatherford

Well Screen: 2 to 12 feet bgs

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	% RECOVERY	PID (ppm)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)	WELL DIAGRAM
								Surface conditions: grass, soil and fill.		
								DRAFT		
								Not logged: shelby tube pushed, 100% recovery.		
5			1	50	450		OH	Clay: blue-green; silty; soft; damp; w/ organics-roots; marsh-clay.	2.8	
			2	10	208			Clay: blue-grey; silty; soft; damp; organic marsh-clay.		
10			3	10	220			Clay: grey-green; silty; soft; wet; organic marsh-clay.	3.2	
15										
20										

**ENSAFE / ALLEN & HOSHALL
NAVAL BASE CHARLESTON
WELL DEVELOPMENT STATUS REPORT
ZONE C**

WELL DEVELOPMENT SUMMARY

Well:NBCC\512-002

Summary Log of well development progress.
Readings are final readings for each visit.
Volume data are cumulative from start of development.

DATE	VOLUME Gallons	pH	Turb NTU	Cond mS/cm	Temp Celsius	Log VOL. PG#
8/8/97	5	6.14	999	0.98	24.7	DL1P129
8/8/97	20	6.22	999	0.91	21.6	DL1P129
8/8/97	30	5.68	999	1.09	23.2	DL1P129
8/8/97	50	6.31	999	1.05	22.3	DL1P129
8/9/97	60	6.48	225	0.917	22.3	DL1P130
8/10/97	80	6.43	196	0.896	20.7	DL1P130
8/10/97	90	6.43	68	0.778	20.4	DL1P130
8/10/97	100	6.45	141	0.966	20.8	DL1P130

Well Development Completed on: 8/10/97

COMMENTS: WELL DEVELOPED BASED ON TOTAL VOLUME PURGED

EnSafe/Allen & Hoshall

Monitoring Well NBCC512003

Project: Zone C - Naval Base Charleston

Coordinates: 2314655.44 E, 378020.93 N

Location: Charleston, SC

Surface Elevation: 10.00 feet msl

Started at 1620 on 8-7-97

TOC Elevation: 12.38 feet msl

Completed at 1750 on 8-7-97

Depth to Groundwater: 5.21 feet TOC Measured: 8-8-97

Drilling Method: 4.25" ID (7.5" OD) HSA with split spoon

Groundwater Elevation: 7.17 feet msl

Drilling Company: Alliance Environmental

Total Well Depth: 13 feet bgs

Geologist: S. Weatherford

Well Screen: 3 to 13 feet bgs

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	% RECOVERY	PID (ppm)	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)	WELL DIAGRAM
								Surface conditions: grass, soil and fill.		
								DRAFT		
								Not logged: shelby tube pushed, 50% recovery.		
5								Not logged, 0% recovery.	5	
			1	0	0		OL OH	Clay: blue-green; fine-silty; soft; damp; marsh-clay.		
			2	75	58					
10										
			3	10	21		SM SP	Sand: grey; fine grained; wet.	1	
			4	70	0				3	
15										
20										

ENSAFE / ALLEN & HOSHALL
NAVAL BASE CHARLESTON
WELL DEVELOPMENT STATUS REPORT
ZONE C

WELL DEVELOPMENT SUMMARY

Well:NBCC\512-003

Summary Log of well development progress.
Readings are final readings for each visit.
Volume data are cumulative from start of development.

DATE	VOLUME Gallons	pH	Turb NTU	Cond mS/cm	Temp Celsius	Log VOL. PG#
8/8/97	3	6.2	999	3.7	27	DL1P131
8/9/97	5	6.35	999	3.24	23.8	DL1P131
8/10/97	15	6.52	950	3.19	23.8	DL1P131
8/12/97	20	6.49	999	3.24	24.7	DL1P139
8/12/97	35	6.63	800	3.26	25	DL1P139
8/12/97	50	6.56	700	3.17	24.1	DL1P140
8/14/97	62	6.06	493	3.1	25.4	DL1P140
8/14/97	66	6.48	507	2.98	26.3	DL1P140
8/14/97	83	6.4	5	2.95	26.4	DL1P140

Well Development Completed on: 8/14/97

COMMENTS: A HIGH VOLUME PUMP WAS USED FROM 66 GALLONS TO 83 GALLONS. COMPLETION WAS BASED ON STABILITY AS WELL AS VOLUME PURGED.